



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,181	08/02/2005	Kimihiko Sato	276159US3PCT	8335
22850	7590	02/26/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER STIMPERT, PHILIP EARL	
			ART UNIT	PAPER NUMBER
			3746	
			NOTIFICATION DATE	DELIVERY MODE
			02/26/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/544,181	<b>Applicant(s)</b> SATO, KIMIHIKO	
	<b>Examiner</b> Philip Stimpert	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/2/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because it contains multiple paragraphs. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claim 7 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, claim 7 not been further treated on the merits.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Regarding claim 1, the following limitations lack antecedent basis in the claim:
  - a. "another magnetic coupling," line 8
  - b. "the shaft end," lines 8-9
  - c. "the side," line 9
  - d. "the first magnetic coupling," line 12
  - e. "the driving shaft," line 13

6. Further regarding claim 1, the claim recites both "another magnetic coupling" on line 8 and "a second coupling" on line 11. The "second coupling" appears to be a second positive recitation of a coupling mated with the first coupling. The uncertainty with respect to the distinctness or unity of the couplings recited on lines 8 and 11 renders the claim indefinite.

7. Further regarding claim 1, the claim recites "an outer field" on line 15. On its face, this limitation is unclear. The examiner is unaware of any accepted meaning for this term in the art, but believes it to refer to a space exterior to the fan, and the limitation will be thus construed in this action.

8. Further regarding claim 1, the claim recites in part, "a non-magnetic partition wall is disposed between the first coupling and a second coupling to be mated with the first magnetic coupling is disposed on the shaft end of the driving shaft of a motor..." Grammatically, the only element here which is eligible to be the subject of "is disposed on the shaft end" is the "non-magnetic partition wall," as "the first coupling" and "a second coupling" are both objects of the preposition "between." However, the examiner's understanding of the invention is that it is the second magnetic coupling, and not the partition wall, which is disposed on the end of a motor driving shaft. Because of the way this recitation is currently formed, it is indefinite with respect to the relation of the elements to the motor drive shaft.

For the purposes of this Office action, claim 1 will be construed as including the phrase " , wherein the second coupling" between the words "coupling" and "is" in line 12.

9. Regarding claim 2, the claim recites "wherein an inert gas is filled..." It is unclear how a gas may itself be filled, and the claim is therefore indefinite. For the purposes of this Office action, claim 2 will be interpreted to require that "the hermetically sealed space is filled with an inert gas."

10. Regarding claim 5, the claim recites that the cooling portion comprises in part an air cooling/radiating portion provided at an outer side of the casing. However, the cooling portion was recited in claim 1 as being "disposed between the heat insulating layer and the bearing." As a result, the disposition of the cooling portion relative to the heat insulating layer and the bearing is unclear, and the claim is thereby rendered indefinite.

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Lefevre et al. (US 5,334,004).

13. Regarding claim 1, Lefevre et al. teach a fan comprising an impeller (14) cantilevered by a rotating shaft (20), bearings (24) attached to the rotating shaft, a heat insulating layer (right side of the rotor housing in Fig. 1) disposed between the impeller (14) and the bearings (24) and a cooling portion (around 44) disposed between at least

Art Unit: 3746

part of the heat insulating layer and the bearings (24). Lefevre et al. also teach a first magnetic coupling (32, 34) which is mated with another, second coupling (36, 40), and that the first magnetic coupling (32, 34) is disposed on a right-hand shaft end of the rotating shaft (20) opposite the impeller (14). Lefevre et al. also teach a non-magnetic (col. 3, ln. 49) partition wall (26) disposed between the first and second coupling, and that the second magnetic coupling is disposed on the shaft end of a driving shaft (38) of a motor (col. 1, ln. 21-23, col. 2., ln 12-20), whereby a space surrounding the rotating shaft (20) is hermetically sealed (col. 3, ln. 45-46) from an exterior of the fan by the non-magnetic partition wall (26) and a casing (substantially the same as the heat insulating layer). The examiner notes that while Lefevre et al. do not teach that their impeller is explicitly heat resistant, a certain degree of heat resistance is inherent in any such impeller, else it would melt at a normal operating temperature, or even a lower temperature.

14. Regarding claim 3, Lefevre et al. teach a fan comprising an impeller (14) cantilevered by a rotating shaft (20), bearings (24) attached to the shaft (20), a heat insulating layer (right side of the rotor housing in Fig. 1) disposed between the impeller (14) and the bearings (24). Lefevre et al. further teach that the heat insulating layer comprises an air cooling means (54, 58) which is itself comprised of a heat receiving portion (at the junction of 58 and the interior space surrounding the shaft 20) which is disposed between the bearings and the left part of the heat insulating layer, an air cooling/radiating portion (54) provided at an outer side of a casing (26) and a heat

transporting portion (58) connecting the heat receiving portion to the air cooling/radiating portion (54).

15. Regarding claim 4, Lefevre teaches that the element 58 is substantially a union of the heat receiving and transporting portions, and constitutes a thermo-siphon heat pipe.

16. Regarding claim 5, Lefevre teaches that the cooling portion is an air cooling means (54, 58) comprising a heat receiving portion (at the junction of 58 and the interior space surrounding the shaft 20) which is disposed between the bearings and the left part of the heat insulating layer, an air cooling/radiating portion (54) provided at an outer side of a casing (26) and a heat transporting portion (58) connecting the heat receiving portion to the air cooling/radiating portion (54).

### ***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lefevre et al. in view of Steinetz et al. (US, 5,076,590).

19. Lefevre et al. substantially teach the limitations of claim 1 from which claim 2 depends, as discussed in the above rejection of claim 1 under 35 U.S.C. 102(b).

Lefevre et al. do not teach that the hermetically sealed space is filled with an inert gas.

Steinetz et al. in general teach a sealing apparatus. However, they particularly teach that an inert gas may be used as a simultaneously as an inert purge gas and a coolant (col. 5, ln. 5-12) which prevents leakage of potentially explosive gases. Lefevre et al. teach that the fan of Lefevre is designed for use with "a dangerous gas, e.g. a gas that is toxic or explosive," (col. 1, ln. 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to fill the hermetically sealed space of the fan of Lefevre with an inert gas, as taught by Steinetz et al.

20. Claims 6/1 and 6/3-6/5 are rejected under 35 U.S.C. 103(a) as being unpatentable over LeFevre et al. in view of Maeda et al. (US 4,815,418).

21. Regarding claims 6/1 and 6/3-6/5, the limitations of the respective parent claims are substantially taught by Lefevre et al. as discussed in the respective rejections under 35 U.S.C. 102(b) above. Further, Lefevre et al. teach a scroll (12). However, Lefevre et al. do not teach an inertia dust collector provided at the inlet port of the scroll. Maeda et al. teach an inertia dust collector (20, see col. 8, ln. 41), and that the dust collector separates out most particulate matter (col. 8, ln. 35-54). One of ordinary skill in the art would appreciate that such particles would effect a deleterious wear on the relatively moving parts of the fan of Lefevre et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fan of Lefevre et al. to provide an inertia dust collector as taught by Maeda et al. in order to separate out particulate matter from the gas flowing to the impeller and thereby decrease wear on the relatively moving parts of the fan.



22. Claim 6/2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lefevre et al. in view of Steinetz et al. as applied to claim 2 above, and further in view of Maeda et al.

23. As above, Lefevre et al. teach a scroll (12). However, Lefevre et al. do not teach an inertia dust collector provided at the inlet port of the scroll. Maeda et al. teach an inertia dust collector (20, see col. 8, ln. 41), and that the dust collector separates out most particulate matter (col. 8, ln. 35-54). One of ordinary skill in the art would appreciate that such particles would effect a deleterious wear on the relatively moving parts of the fan of Lefevre et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fan of Lefevre et al. to provide an inertia dust collector as taught by Maeda et al. in order to separate out particulate matter from the gas flowing to the impeller and thereby decrease wear on the relatively moving parts of the fan.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3746

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3683

/P. S./  
Examiner, Art Unit 3746  
14 Feb 08